

Application No.: 10/739,439

Case No.: 58797US002

Amendments to the Claims:

The following Listing of Claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Presently Amended) Transparent fused crystalline ceramic comprising in a range from 45 to 80 percent by weight Al_2O_3 and in a range from 55 to 20 percent by weight ZrO_2 , based on the total weight of the transparent fused crystalline ceramic, wherein the Al_2O_3 and ZrO_2 are present in crystalline phases, and wherein the transparent fused crystalline ceramic contains less than 10 percent by weight amorphous material.

2. (Presently Amended) Transparent fused polycrystalline ceramic comprising in a range from 45 to 80 percent by weight Al_2O_3 and in a range from 55 to 20 percent by weight ZrO_2 , based on the total weight of the transparent fused crystalline ceramic, wherein the Al_2O_3 and ZrO_2 are present in crystalline phases, and wherein the transparent fused crystalline ceramic contains less than 10 percent by weight amorphous material.

3. (Original) The transparent fused polycrystalline ceramic according to claim 2 comprising collectively at least 80 percent by weight Al_2O_3 and ZrO_2 , based on the total weight of the transparent fused polycrystalline ceramic.

4. (Original) The transparent fused polycrystalline ceramic according to claim 2 comprising collectively at least 90 percent by weight Al_2O_3 and ZrO_2 , based on the total weight of the transparent fused polycrystalline ceramic.

5. (Original) The transparent fused polycrystalline ceramic according to claim 2 comprising Al_2O_3 in a range from 50 to 70 percent by weight and ZrO_2 in a range from 50 to 30 percent by weight, based on the total weight of the fused polycrystalline ceramic.

Application No.: 10/739,439

Case No.: 58797US002

6. (Previously Presented) The transparent fused polycrystalline ceramic according to claim 2 comprising a laminar microstructure, wherein the laminae have thicknesses less than 250 nanometers.

7. (Previously Presented) The transparent fused polycrystalline ceramic according to claim 2, wherein the material is in the form of a particle.

8. (Original) A plurality of particles according to claim 7.

9. (Original) The particles according to claim 8 having particle sizes in a range from 1 micrometer to 2000 micrometers.

10. (Previously Presented) The particles according to claim 2, wherein the fused polycrystalline ceramic comprises eutectic alumina-zirconia material, the eutectic alumina-zirconia material having a laminar microstructure, and wherein the laminae have thicknesses less than 250 nanometers.

11. (Original) A method of making the plurality of transparent fused polycrystalline ceramic particles according to claim 8, the method comprising:

flame forming a melt, the melt comprising Al_2O_3 and ZrO_2 collectively at least 65 percent by weight Al_2O_3 and ZrO_2 , based on the total weight of the melt;
shaping the melt into precursor particles; and
cooling the precursor particles to directly provide the transparent fused polycrystalline ceramic particles.

12. (Original) The method according to claim 11, wherein the flame forming is conducted at no more than 2500°C.

Application No.: 10/739,439

Case No.: 58797US002

13. (Previously Presented) The method according to claim 11, wherein the transparent fused polycrystalline ceramic comprises a laminar microstructure, and wherein the laminae have thicknesses less than 250 nanometers.

14. (Original) A method of making the plurality of transparent fused polycrystalline ceramic particles according to claim 8, the method comprising:

flame forming a melt, the melt comprising Al_2O_3 and ZrO_2 collectively at least 65 percent by weight Al_2O_3 and ZrO_2 , based on the total weight of the melt;
cooling the melt to provide transparent fused polycrystalline ceramic;
crushing the transparent fused polycrystalline ceramic material to provide the transparent fused polycrystalline ceramic particles.

15. (Original) The method according to claim 14 wherein the flame forming is conducted at no more than 2500°C.

16. (Currently Amended) A method of making the transparent fused polycrystalline ceramic according to claim 2, the method comprising:

flame forming a melt, the melt comprising Al_2O_3 and ZrO_2 collectively at least 65 percent by weight Al_2O_3 and ZrO_2 , based on the total weight of the melt; and
cooling the melt to directly provide the transparent fused polycrystalline ceramic.

17. (Original) The method according to claim 16, wherein the flame forming is conducted at no more than 2500°C.

18. (Previously Presented) The method according to claim 16, wherein the fused polycrystalline, eutectic alumina-zirconia material comprises a laminar microstructure, and wherein the laminae have thicknesses less than 250 nanometers.